covalent binding of protein to the encoding DNA, said method comprising at least the following steps:

1) preparing an amplifiable genetic library of a population of DNA molecules, each DNA molecule comprising:

(a) a nucleotide sequence encoding a binding moiety comprising an amino acid sequence which is a *cis*-acting DNA binding protein which binds specifically to the DNA encoding sequence through covalent binding of the amino acid sequence to DNA, and

(b) a nucleotide sequence encoding a display moiety comprising an amino acid sequence for display, and wherein the display moiety has at least one site of attachment for the binding moiety, and

2) expressing the genetic library thus formed, to produce the population of peptides or proteins each specifically associated with the DNA encoding them through covalent binding of protein to the encoding DNA.

20. (New) The method as claimed in claim 19 wherein expression of the genetic material is performed *in vivo*

with a single library member, optionally present in more than one copy, expressed per host cell or organism.

21. (New) The method as claimed in claim 19 wherein said amino acid sequence which binds specifically to said encoding sequence is derived from a cis-acting protein or a functionally-equivalent fragment, variant or derivative thereof and expression of the genetic material is performed *in vivo* with at least one library member, optionally present in more than one copy, expressed per host cell or organism.

22. (New) The method as claimed in claim 19 wherein said amino acid sequence which binds to said encoding sequence is derived from a *cis*-acting protein or functionally-equivalent fragment, variant or derivative thereof and expression of the genetic material is performed *in vitro*.

23. (New) The method as claimed in claim 19 wherein said *cis*-acting protein is the P2 A protein.

24. (New) The method as claimed in claim 22 wherein said expression is performed in the presence of a mis-match

oligonucleotide which hybridizes to the DNA adjacent to the attachment site on both sides but does not hybridize in the region corresponding to the attachment site.

25. (New) The method as claimed in claim 19 wherein said amino acid sequence for display is up to 40 amino acid residues.

26. (New) The method as claimed in claim 19 wherein said amino acid sequence for display is generated by, or comprises DNA fragments from, cloning.

27. (New) A method as claimed in claim 19 wherein said binding moiety is derived from P2A which has been modified by replacement of tyrosine at amino acid position 450 with phenylalanine.

28. (New) An *in vitro* peptide expression library produced according to the method of claim 19.

29. (New) A DNA molecule containing a DNA sequence encoding a peptide or protein for expression in a library according to claim 28, containing a sequence encoding an amino acid sequence which binds specifically to said

encoding sequence through covalent protein:DNA binding (binding moiety), a sequence encoding an amino acid sequence for display (display moiety) and at least one site of attachment for the binding moiety, and degenerate and/or functionally equivalent sequences.

30. (New) A DNA vector containing a DNA sequence as claimed in claim 29.

31. (New) A method of identifying a library member exhibiting desired properties from a peptide or protein expression library as defined in claim 28, comprising at least the steps of a) screening a library as defined in claim 28, and b) selecting and isolating the library member exhibiting desired properties.

32. (New) A method of identifying a specific target-binding peptide or protein, said method comprising at least the steps of a) screening a library as claimed in claim 28 with target molecules and b) selecting and isolating a library member binding to said target molecule and c) isolating the peptide or protein which binds specifically to said target molecule.

33. (New) The method as claimed in claim 32 wherein additionally the DNA expressing the peptide or protein which binds specifically to said target molecule is isolated.

34. (New) A method of assaying for the presence of a target molecule in a sample, said method comprising (a) contacting said sample with a molecular probe comprising (i) a peptide or protein target-binding moiety capable of selectively binding to said target molecule, with attached encoding DNA, the DNA moiety, selected from the library as claimed in claim 28 and (ii) a reporter moiety; and (b) directly or indirectly assessing the target bound probe.

35. (New) A bifunctional molecular probe for use in the assay method according to claim 34 comprising (i) a peptide or protein moiety capable of selectively binding to a target molecule, with attached encoding DNA, the DNA moiety, selected from the library as claimed in claim 28 and (ii) a reporter moiety.

36. (New) A method of purifying a library member exhibiting desired properties from a

peptide or protein expression library as defined in claim 28, comprising at least the steps of:

(a) screening a library as defined in claim 11, and

(b) selecting, isolating and purifying the library members exhibiting desired properties.

27. (New) The method according to claim 19, wherein said nucleic acid encoding said amino acid sequence for display is generated by amplification by PCR.

Please substitute the following amended claims for corresponding claims previously presented. A copy of the amended claims showing current revisions is attached.

REMARKS

Reconsideration of this application and entry of the foregoing amendments are respectfully requested.

At the outset, Applicants offer the following comments which, it is believed, provide an explanation of the nature of the present invention.

The invention relates to the generation of a particular type of gene expression library called a display library. Gene expression libraries are well known and have been described in the prior art. Display libraries are a